

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF VIRGINIA
Norfolk Division

BIEDERMANN TECHNOLOGIES
GmbH & CO. KG,

Plaintiff,
v.

Case No. 2:18cv585

K2M, INC. and K2M GROUP
HOLDINGS, INC.,

Defendants.

OPINION AND ORDER

This patent infringement action is before the Court on cross-motions for judgement as a matter of law ("JMOL") filed by Plaintiff Biedermann Technologies GmbH & Co. KG ("Biedermann") and Defendants K2M, Inc. and K2M Group Holdings, Inc. (collectively, "K2M"), pursuant to Rule 50(b) of the Federal Rules of Civil Procedure. ECF Nos. 985, 987. Both parties' motions alternatively seek a new trial pursuant to Rule 59. *Id.* As explained below, Biedermann's motion is **GRANTED** in part and **DENIED** in part, and K2M's motion is **DENIED**.

I. BACKGROUND

At the conclusion of a two-week trial, the jury returned a verdict finding that two products sold by K2M infringe on patents owned by Biedermann. ECF No. 966. The jury separately found that K2M had proved by clear and convincing evidence that five asserted patent claims across four Biedermann patents were invalid in light

of the prior art presented at trial. Id. For those patent claims that were infringed and not proven invalid, the jury awarded Biedermann over \$17 million in damages for past infringement. Id. Subsequent to trial, and at the parties' joint request, the Court vacated the judgment and established a briefing schedule to resolve a dispute over the ongoing royalty associated with K2M's "Everest" product.¹ ECF Nos. 971, 972. After the Court received the briefs and resolved the dispute as to the ongoing royalty, ECF No. 982, the Clerk's updated final judgment was entered, and the parties filed their respective JMOL/new trial motions, which became ripe in early April. ECF Nos. 984-90, 992-93.

II. STANDARDS OF REVIEW

A. JMOL and New Trial Standards

In a patent case, the law of the regional circuit governs both Rule 50(b) JMOL motions and Rule 59 motions for a new trial. Bettcher Indus., Inc. v. Bunzl USA, Inc., 661 F.3d 629, 638 (Fed. Cir. 2011). The United States Court of Appeals for the Fourth Circuit has described the Rule 50(b) standard as follows:

A trial court may grant judgment as a matter of law when it finds that a reasonable jury would not have a legally sufficient evidentiary basis to find for the non-moving party. A court, however, may not disturb the verdict where there was sufficient evidence for a reasonable jury to find in the non-movant's favor. A trial court may not appropriately enter judgment as a matter of law unless it concludes, after consideration of the record

¹ The jury's damages award as to K2M's "Yukon" product was predicated on infringement of a patent that expired before trial, which mooted the issue of an ongoing royalty as to Yukon.

as a whole in the light most favorable to the non-movant, that the evidence presented supports only one reasonable verdict, in favor of the moving party.

Dotson v. Pfizer, Inc., 558 F.3d 284, 292 (4th Cir. 2009) (cleaned up); see Price v. City of Charlotte, 93 F.3d 1241, 1249 (4th Cir. 1996) ("Because federal courts do not directly review jury verdicts, . . . the [party seeking JMOL] bears a hefty burden in establishing that the evidence is not sufficient to support the [jury's] awards.").

Pursuant to Rule 59, a new trial is appropriate if the "verdict is against the clear weight of the evidence," is "based upon evidence which is false," or "will result in a miscarriage of justice." Atlas Food Sys. & Servs., Inc. v. Crane Nat. Vendors, Inc., 99 F.3d 587, 594 (4th Cir. 1996) (citation omitted). A miscarriage of justice may occur if there is a reasonable probability that improper jury instructions, or misconduct by counsel that permeated the trial, affected the jury's verdict. See Wickersham v. Ford Motor Co., 997 F.3d 526, 535 (4th Cir. 2021); 10 Cyc. of Federal Proc. § 34:15 (3d ed.). Of course, "[u]nless justice requires otherwise, no error in admitting or excluding evidence--or any other error by the court or a party--is ground for granting a new trial" Fed. R. Civ. P. 61. Accordingly, "[a]t every stage of the proceeding, the court must disregard all errors and defects that do not affect any party's substantial rights." Id.

B. Invalidity Standard

Biedermann's motion challenges the jury's finding of invalidity by "anticipation" as to four patent claims across three Biedermann patents. "[I]nvalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation." Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1282 (Fed. Cir. 2000). As the jury was instructed in this case, an alleged infringer has the burden to prove anticipation by "clear and convincing evidence." Microsoft Corp. v. I4I Ltd. P'ship, 564 U.S. 91, 97, 113-14 (2011).

C. Infringement Standard

K2M challenges the jury's finding of infringement as to one patent, while Biedermann challenges the jury's finding of non-infringement as to another patent, alternatively seeking a new trial as to that patent. "To prove infringement, a patentee must supply sufficient evidence to prove that the accused product or process contains . . . every limitation of the properly construed [patent] claim." Eli Lilly & Co. v. Hospira, Inc., 933 F.3d 1320, 1328 (Fed. Cir. 2019) (quotation marks omitted). The burden is on the patentee to prove infringement "by a preponderance of the evidence." Id.

III. DISCUSSION - BIEDERMANN'S MOTION

Biedermann's motion challenges the jury's invalidity findings as to four claims across three patents: the '399, '121, and '784 patents. Additionally, as to the '121 patent, Biedermann asks the Court to set aside the jury's finding of non-infringement and to find as a matter of law that K2M's Yukon product infringes on the '121 patent. Biedermann alternatively requests a new trial on these same issues. For the reasons stated below, Biedermann's motion is granted as to its invalidity arguments involving the '121 and '784 patents and is denied in all other respects.

A. Invalidity Background

To provide a brief technical background relevant to the invalidity claims, the instant case involves bone screw assemblies typically used in spinal surgery. A bone screw has a head and shank. The head of the bone screw sits inside and at the bottom of a U-shaped "receiver," with the receiver being open at the top end. A "pressure member" (or "pressure element" or "compression insert") then sits within the receiver on top of the screw head, and the pressure member has a U-shaped or V-shaped channel on the top capable of cradling a longitudinal connecting "rod." During spinal surgery, after several bone screws are affixed to each of several vertebrae, a single connecting rod is inserted into the pressure member of each screw assembly to assist in fusing together the various vertebrae. A set screw (or "securing element") is

then threaded into internal threads that are located at the very top of each receiver until the set screw clamps the rod down into a final fixed position.

Biedermann's '399 patent requires a pressure member with a specific type of V-shaped cradle that is capable of accepting connecting rods with different diameters. Biedermann's '121 patent requires a pressure member that interacts frictionally with the bone screw head in a specific manner that allows a surgeon to position the receiver and screw shank in a temporary angular "hold" position, making it easier to connect the multiple screw assemblies via the connecting rod. Biedermann's '784 patent requires a cutout in the walls of the receiver, referred to as an "undercut," located immediately below the internal threads of the receiver that accept the set screw. The '784 patent also provides specific limitations regarding the comparative sizes or locations of different elements of the bone screw assembly, ultimately requiring that when the rod is clamped down by the set screw, the lowest part of the external thread of the set screw is located within the undercut that is beneath the receiver's internal thread.

B. Invalidity - '399 Patent

Biedermann's JMOL motion argues that a reasonable jury would not have a legally sufficient evidentiary basis to conclude that K2M demonstrated, by clear and convincing evidence, that the '399 patent is anticipated by either the "Kim" prior art reference or

the "Ferris" prior art reference. As the jury was properly instructed, because K2M relied solely on an anticipation defense, the jury was tasked with determining whether either of these prior art references, considered alone, expressly or inherently describes "every element of the claimed invention." Advanced Display Sys., 212 F.3d at 1282.²

Here, taking all the evidence in the light most favorable to K2M, the Court looks no further than the Kim prior art reference to find that Biedermann fails to carry its post-trial burden on this issue. K2M's expert's testimony regarding the geometry of the pressure element disclosed by Kim, considered in conjunction with the four corners of the Kim prior art reference, is sufficient to support the jury's finding that the '399 patent is invalid as anticipated. In short, the angled sides of the pressure member in Kim are expressly described as being designed to accept multiple sized rods, and there is sufficient evidence for a jury to conclude that the text and figures of Kim would reveal to a person ordinarily skilled in the art ("POSA") a design wherein the range of rods configured to be accepted by the angled pressure member when inserted into the bone anchoring assembly would contact the

² Biedermann argues that K2M did not provide any inherency arguments at trial; however, the jury was instructed that anticipation could be proven by establishing that "all of the requirements of the claim must have been disclosed and arranged as in the claim," though different words could be used and the claim requirements "may either be disclosed expressly or inherently; that is, necessarily implied." Jury Instruction 31.

pressure member along only two lines of contact. The jury could reasonably find that a POSA would understand both that the firm fixation of the rod is critical and that the angled or "sloped" sides as described in Kim are what enables the effective fixation of rods with different diameters. Additionally, any rod configured to be accepted into the assembly must still be large enough to be clamped into place by the fixation nut and to be effective at securely fastening the multiple assemblies together. The jury therefore had a valid basis in fact to conclude that a POSA would interpret the sloped sides of Kim as forming the contact necessary to firmly fix the rod in place and that the geometry that Kim both visually discloses and describes in its text would prevent the bottom of the rod from touching the base of the pressure member. See DTX-275, at 12-13, 16-18 (indicating that the pressure member – referred to as a "compression bush" – has angled sides "so as to be compressed by various sizes of support bar [i.e., rod]" and that various support bar sizes are accommodated "due to the fact that" the pressure member has "slopes at both inner upper sides") (emphasis added). Biedermann's motion is therefore denied as to the '399 patent.

C. Invalidity - '121 Patent

Biedermann's JMOL motion argues that a reasonable jury would not have a legally sufficient evidentiary basis to conclude that K2M demonstrated, by clear and convincing evidence, that the '121

patent is anticipated by the "Jackson" prior art reference. The dispute as to this issue turns primarily on the manner in which Jackson achieves a "temporary hold" on the head of a bone screw. Biedermann's '121 patent achieves a temporary hold through a friction-fit "pressure member" that receives a rod. Although Jackson includes a "compression insert" that is the equivalent to a pressure member as it sits above the screw head and receives the rod, Biedermann highlights that Jackson achieves a temporary hold on the screw shank angulation through a "retainer," which is an entirely different structure from the compression insert.

Notwithstanding the deference owed to the jury's verdict, Biedermann's position on this issue is well-founded. As revealed by the specification excerpts, images, and claim language of Jackson that K2M's expert cited at trial, Biedermann effectively demonstrates the absence of a legally sufficient evidentiary basis to find, under the heightened clear and convincing evidence standard, that Jackson discloses all elements of the '121 patent claim at issue. Most notably, the text and figures from Jackson relied on by K2M at trial clearly reveal that the receiver assembly described in Jackson achieves a "temporary angular hold" on the bone screw in a "still movable" but "non-floppy manner" by utilizing a friction-fit "resilient open retainer," with the retainer both described and illustrated as an entirely different

structure from the compression insert (i.e., pressure member) that seats the longitudinal connecting rod. DTX-266 ¶ 12, Claim 1.

That Jackson does not, directly or inherently, disclose a pressure member that both receives a rod and creates a pre-load temporary hold on the top of the bone screw is clear from:

(1) figure 34 of Jackson (the retainer is labeled as structure "12" and the separate "compression insert" is labeled as structure "14"); (2) the specification, id. ¶¶ 12-13, 145 (describing the separate functions of each of these two separate structures); and (3) the claim terms themselves, id. at Claim 1 (describing the "retainer" as achieving a temporary friction-fit hold that still allows the screw shank to be "pivotable with some force" and separately describing the "insert" located between the upper portion of the screw shank and the longitudinal connecting rod). Accordingly, when the Jackson claim terms are read in light of the specification and figures, it is clear that the "compression insert" is the component that receives a rod and operates to help achieve a final lock on the angled bone screw, while the "retainer" is described in an entirely different subparagraph of Claim 1 of Jackson as the component that retains the temporary angular hold prior to final locking.³ In contrast, Biedermann's '121 patent

³ The fact that one embodiment of Jackson involves a compression insert achieving a friction lock does not alter the above analysis because there is a critical difference between a frictional engagement that locks a screw in an angular position (i.e., a final lock) and a frictional engagement that creates drag allowing the screw to be posed into a temporary angular position

utilizes a single pressure member that both seats the rod and achieves the temporary angular hold on the screw.

A careful review of K2M's expert's trial testimony further strengthens Biedermann's post-trial position. Notably, K2M's expert's testimony repeatedly relied on Jackson's description of how the "retainer" (12) operates when he was supposedly describing how Jackson's "compression insert" (14) operates. This conflation gave the inaccurate impression that Jackson disclosed a singular insert that achieved the combined functions of the two distinct structures described in Jackson.

For example, K2M's trial expert identified the compression insert (14) as the "pressure member" and shaded it in a yellow color on the demonstrative slide that was an annotated version of Figure 34 from Jackson. Trial Tr. 1685-86; DDX-TD 168. In the

that can be adjusted as needed (i.e., a temporary hold). See DTX-266 ¶ 12 (describing the role of the retainer creating a frictional hold that still allows movement of the screw and separately describing the role of the compression insert creating a locked screw angle). Paragraph 145, cited by K2M's expert at trial, describes how a compression insert can create a secondary "lock" in certain embodiments, but nothing in this paragraph of the specification, or in any other paragraph cited by K2M, suggests that the compression insert's lock is a partial hold allowing for repositioning of the screw shank. To the contrary, Jackson's discussion of embodiments using a friction-fit insert, including those that allow the insert to remain "locked" after the rod and set screw are removed, discuss the benefit of repositioning the rod while the screw shank remains in its final locked angular position. DTX-266 ¶¶ 13, 145, 163-171, 214-19. Furthermore, the specification repeatedly describes the retainer as achieving the temporary hold, and that once the compression insert is frictionally engaged, the shank is then locked. See, e.g., id. at 163, 169, 217, 219. The fact that the compression insert may be unlocked by a surgeon in some embodiments does not equate this secondary lock with a temporary hold because the ability to disengage a final lock is not the same as a temporary partial hold that still permits angulation adjustments.

same demonstrative, the "retainer" labeled as structure 12 is not shaded or annotated and was not discussed by K2M's expert as being related to achieving a temporary hold on the screw. To the contrary, K2M's expert attributed the temporary hold solely to the yellow pressure member notwithstanding the fact that Jackson lacks any reference to the pressure member achieving such function. Id.

Moreover, K2M's expert indicated that his opinion that the pressure member held the screw in a temporary angular position is supported by the fact that such feature is "discussed and described" in paragraphs 12 and 13 of Jackson's specification. Id. at 1686. A review of those cited paragraphs, however, again reveals that the described temporary hold is expressly attributed to the retainer (12), not to the compression insert (14). DTX-266 ¶¶ 12-13. K2M's expert's testimony is therefore insufficient to support the jury's finding of anticipation. See Homeland Housewares, LLC v. Whirlpool Corp., 865 F.3d 1372, 1379 (Fed. Cir. 2017) ("[A] court should discount any expert testimony that is clearly at odds with . . . the written record of the patent." (alterations in original) (quotation marks omitted)).⁴

⁴ K2M's expert also cited ¶ 145 of Jackson, but as discussed in footnote 3, this paragraph addresses the potential for the compression insert to achieve a secondary lock that may allow the rod to be repositioned. Moreover, though not necessary to this Court's analysis, it appears that K2M's expert, due to time constraints, did not even review with the jury his slides describing the Jackson embodiment that relies on a frictionally engaged pressure member, instead relying on an embodiment where the pressure member is held in the receiver by "crimps." Trial Tr. 1728-29.

In its post-trial brief, K2M fails to point to any evidence introduced at trial that would permit a reasonable factfinder to give credence to testimony conflating and combining two separate structural components of Jackson, which achieve two different functions, into a singular pressure member insert capable of achieving both distinct functions. The fact that K2M's expert improperly combined these two structures was pointed out by Biedermann's expert at trial, who testified that Jackson, unlike Biedermann's patent, relies on "what's called a retainer[,]" which is a "collet-like structure" with a "series of leaves," that "engages the bottom of the sphere of the screw" and is labeled as "item 12" in Jackson. Trial Tr. 1821-22.

Conflicting expert opinions are, in almost all instances, a matter for the jury to resolve. Here, however, in light of Jackson's plain language, this dispute does not turn on a credibility finding between two viable expert opinions. Rather, one expert's testimony directly tracks the language of Jackson, while the other's testimony is based on inaccurate citations and is fatally undermined by the plain language of Jackson's specification and claims.⁵ Biedermann's motion is therefore granted with respect to the '121 patent.

⁵ K2M attempts to defend the jury's verdict by suggesting that the arched shape of the bottom of Jackson's pressure insert creates a frictional hold on the screw head. However, neither K2M nor its expert identifies a single statement in Jackson suggesting that this shape creates a pre-load holding force strong enough to generate a non-floppy temporary hold on the screw

D. Invalidity - '784 patent

Biedermann's final JMOL challenge to the jury's invalidity findings argues that a reasonable jury would not have a legally sufficient evidentiary basis to conclude that K2M demonstrated, by clear and convincing evidence, that the '784 patent is anticipated by the "Landry" prior art reference. Putting aside any reservations regarding the potential obviousness of the "undercut" concept covered by the '784 patent as there was not an obviousness challenge before the jury, the Court largely agrees with Biedermann's post-trial arguments on anticipation.

shaft angulation. The fact that the insert bottom is contoured to the shape of the screw head offers other obvious benefits as well, to include for the role the insert is expressly described as performing: engaging the screw head as part of the final locking mechanism. Such shape likewise may be necessary to avoid obstructing the pivotability of the bone screw. Cf. Trial Tr. 1701. K2M's post-trial arguments also unconvincingly attempt to turn the tables by suggesting that the retainer (12) only achieves the temporary hold "in certain embodiments," ECF No. 989, at 24, but Jackson never even alludes to the insert (14) performing this function in any described embodiment. K2M's reliance on its expert's testimony regarding a different required element (element [e] regarding upward movement of the insert) when arguing about the temporary hold feature (element [d]) is also unavailing as it relies purely on speculation that the compression insert is crimped into a position creating a strong enough frictional preload against the screw head to achieve a temporary angular hold. As highlighted by Biedermann, Jackson explains that the purpose of the crimps is to prevent the compression insert from rotating, not to prevent the insert from moving up. DX-266 ¶ 157. Moreover, even accepting that Jackson's statement that the crimps "do not vertically fix the insert with respect to the receiver" actually means that the crimps do "restrict" the insert from moving up in the receiver, such fact does not support the logical leap that such restriction is so great that it creates a strong enough frictional hold to maintain a temporary angular position. Notably, the concept of a crimp so restrictive that it creates the drag necessary to hold the screw angulation does not appear anywhere in Jackson; to the contrary, every embodiment of Jackson covered by Claim 1 expressly relies on a retainer to "retain" the required temporary hold.

As an initial matter, and as argued by Biedermann, K2M's expert's anticipation analysis relies exclusively on diagrams that are expressly characterized in Landry as drawings that "may not be to scale," DTX-270, at 8:11, to make critical comparisons and draw fine lines regarding the relative size and locations of individual components of the Landry bone screw assembly. Not only are there factual concerns with the reliability of the diagrams due to Landry's scale disclaimer, but also Biedermann points to controlling precedent that undercuts K2M's expert's attempt to extrapolate locations from Landry figures that were not intended to speak to the topics covered by the disputed claims of the '784 patent. See Hockerson-Halberstadt, Inc. v. Avia Grp. Int'l, Inc., 222 F.3d 951, 956 (Fed. Cir. 2000) ("Under our precedent, . . . it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." (emphasis added)); Nystrom v. TREX Co., 424 F.3d 1136, 1149 (Fed. Cir. 2005) ("We disagree with the [Patent and Trademark Office]'s conclusion, reached by a comparison of the relative dimensions of drawings because "[a]bsent any written description in the specification of quantitative values, arguments based on measurement of a [patent] drawing are of little value." (emphasis added) (second alteration in original) (quoting Application of Wright, 569 F.2d 1124, 1127 (C.C.P.A. 1977))); Application of Mraz,

455 F.2d 1069, 1072 (C.C.P.A. 1972) (explaining that features that patent drawings "show clearly" can be sufficient to establish anticipation, especially when they are the focus of the figure and shown "with great particularity," but distinguishing a case where the patent drawing at issue was "obviously never intended to show the dimensions of anything"); see also PlaSmart, Inc. v. Kappos, 482 F. App'x 568, 572 (Fed. Cir. 2012) ("Our precedent has held that drawings can be used as prior art, without referring to the surrounding description, only if the prior art features are clearly disclosed by the drawing." (emphasis added)).

Second, even if the Court accepts K2M's argument that certain relative comparisons regarding the locations of "qualitative features" are permissible despite Landry's scale disclaimer,⁶ and further interprets K2M's expert's annotated Landry Figure 1 in the light most favorable to K2M, the Court still concludes that a reasonable jury could not find by clear and convincing evidence that every element of the relevant '784 patent claims is disclosed by Landry. See Sciele Pharma Inc. v. Lupin Ltd., 684 F.3d 1253, 1260 (Fed. Cir. 2012) (explaining that, due to the deference owed to the Patent and Trademark Office's decision to issue a patent,

⁶ In Paice LLC v. Ford Motor Co., the Federal Circuit credited the expert's reliance on "qualitative features" of a patent diagram "[r]egardless of whether or not the figure is drawn to scale." 681 F. App'x 885, 891 (Fed. Cir. 2017). But unlike the instant case: (1) the issue was obviousness, not anticipation; and (2) the disputed figure in Paice was further supported by relevant patent text.

the patent's presumption of validity creates a "high burden of proof" as "reflected in the clear and convincing evidence burden," which is a "heavy burden of persuasion" (citations omitted)). Two elements that are lacking from Landry are discussed in turn below.

1. Absence of Element [e]

Element [e] of Biedermann's patent requires that the "first internal thread" of the retainer is smaller or equal to "distance (A)." PX-2, Claim 1. Distance (A) is defined as the distance from the top of the receiver to the top of the rod when the rod is inserted into the pressure member or other cradle designed to receive and hold the rod. *Id.* As highlighted at trial by Biedermann's expert, K2M's expert's testimony and the demonstrative slides on which he relied are insufficient to support a finding by clear and convincing evidence that Landry necessarily includes that claim limitation. See Bettcher Indus., 661 F.3d at 639 ("Inherency can be established when prior art necessarily functions in accordance with, or includes, the claimed limitations . . . [and] may not be established by probabilities or possibilities." (emphasis added) (quotation marks omitted)).

K2M's expert testified that he relied on Landry "Figure 5 and Figure 1" to determine that the internal thread on Landry's receiver is smaller than "distance (A)." Trial Tr. 1695. Beginning first with Figure 5 of Landry, such figure does not depict a rod at all. Thus, it is impossible to determine distance

(A) using Figure 5. Without the ability to measure or approximate distance (A), it is impossible to make the required comparison for determining whether element [e] is necessarily present.

As to Landry Figure 1, this figure clearly allows for at least a rough measurement of distance (A) because a rod is present; however, the installed set screw shown on top of the rod fully obscures the receiver's internal thread, rendering it impossible to measure or approximate this critical distance. Seemingly unable to annotate the size of the obscured internal thread, K2M's expert instead annotated his demonstrative exhibit with the height of the external threads on the front side of the set screw. DDX-TD 194. K2M's expert then relies on this measurement to establish the purported height of the obscured internal threads present on each side of the Landry receiver. Trial Tr. 1695; see also id. at 1813 (Biedermann's expert's rebuttal testimony highlighting that K2M's expert's green annotated line on Landry Figure 1 incorrectly measures the size of the set screw's external threads). Stated another way, not only was K2M's expert's anticipation opinion improperly dependent on making precise measurements using a figure that may not be to scale, but also K2M's expert was "not measuring the right element." Trial Tr. 1814.

Notwithstanding these facial errors, K2M argues in its post-trial brief that Landry shows that the "corresponding internal threads on the receiver match and accept the external threads of

the set screw." ECF No. 989, at 4. However, K2M fails to point to any trial evidence (or excerpt from Landry) demonstrating that the internal and external threads are precisely the same height. Rather, nothing in Figure 5 of Landry visually establishes that the receiver's internal thread does not extend below the final location of the bottom thread of the set screw. If the internal thread does extend below, even fractionally below, the bottom thread of the set screw in its final locked location, the internal thread may be longer than distance (A). Based on K2M's expert's reliance on the wrong measurement to prove the necessary presence of element [e], the jury's verdict cannot stand.

2. Absence of Element [g]⁷

Biedermann's '784 patent expressly requires that "the first external thread of the securing element is moveable into the undercut," PX-2, Claim 1 (emphasis added), and none of the Landry diagrams depict this characteristic. K2M's expert's limited trial testimony on this issue, considered in conjunction with the two Landry diagrams on which he relies (Figures 1 and 9b), is insufficient as a matter of law to demonstrate that this element is necessarily present in Landry for multiple reasons.

⁷ The transcript of K2M's expert's testimony references "element d" twice, with the second reference discussing a different element than the first. Trial Tr. 1694, 1696-97. Based on context, the second reference to element d is actually a discussion of element [g]. Id. at 1696-97.

First, K2M's expert's analysis of this element ultimately concludes that "one would assume" that element [g] is satisfied by Landry. Trial Tr. 1697.⁸ As noted above, "[a] reference may anticipate inherently if a claim limitation that is not expressly disclosed is necessarily present, or inherent, in the single anticipating reference." In re Montgomery, 677 F.3d 1375, 1379-80 (Fed. Cir. 2012) (emphasis added) (quotation marks omitted). Educated assumptions about the likely final location of the set screw's external thread are therefore insufficient.

Second, even if assumptions are acceptable in certain contexts, Landry does not discuss the undercut feature that K2M's expert asserts is depicted in multiple Landry figures, weakening the proposition that a skilled artisan can safely "assume" how the Landry set screw interacts with this unmentioned undercut feature. This is especially true given that none of the diagrams clearly illustrate such interaction, and there is no mention in the claims or specification of relevant sizes or locations of any of the relevant structures. Application of Mraz, 455 F.2d at 1072.

Third, K2M's expert's position requires assuming that multiple distinct Landry figures all contain the same features of

⁸ K2M argues that its expert did not merely assume such fact, but rather displayed it on an annotated version of Landry Figure 1. ECF No. 989, at 5-6. However, the cited diagram does not depict the relative location of the bottom of the set screw thread nor does it clearly depict the relative location of the undercut. The diagram thus fails to offer a reliable visual as to whether these two obscured locations interact in the manner "assumed" by K2M's expert.

the same relative size and in the same relative locations. However, the text of Landry's specification describes Figure 1 as "an embodiment" of the patent and similarly describes other individual figures as "an embodiment." DTX-270, at 4:64-7:59. Importantly, K2M offers no evidence suggesting that the figures it relies on are different views of the same embodiment. Stated a little differently, the fact that one embodiment displayed without a rod has three internal threads and a structure interpreted as an "undercut" does not establish that a different diagram with a rod fully obscuring the inside receiver components likewise has precisely three internal threads and an undercut located in precisely the same location. Moreover, even if one accepts the proposition that the different diagrams depict the same embodiment, K2M's own annotation of Landry Figure 1 fails to demonstrate that the set screw extends into the "undercut" as required by element [g] of the '784 patent. Rather, the annotated line across the top of the rod in K2M's demonstrative does not intersect the side wall of the receiver within the annotated red "undercut" area identified by K2M's expert. DDX-TD 193-95, 198.⁹

⁹ Counsel for K2M noted in his closing that it was his firm's fault that the red shading did not extend further up the side of the receiver to include "the little white above it." Trial Tr. 2065; DDX-C 76. But on post-trial review, there is no visual clue suggesting why the red should extend further up, and even if it was extended as counsel suggests, it is still unclear whether K2M's angled annotated line intersects with the expanded undercut.

Fourth, K2M's expert concluded that if the set screw is even fractionally recessed at the top of the receiver, the bottom/base of the set screw necessarily enters into the undercut, but he failed to explain how the asserted existence of a recess on the top of the assembly means that a skilled artisan would know that the bottom external thread of the set screw necessarily enters the undercut. K2M's expert's conclusion, at least as explained to the jury, was not predicated on any statements or unambiguous figures in Landry. Rather, upon review, the statement appears to be predicated on one or more unknowable assumptions, including that the set screw is manufactured to be precisely the same height as the height of the internal threads of the receiver, that the set screw lacks a base that extends even fractionally below the set screw's bottom thread, or that the embodiment pictured in Landry Figure 1 has internal threads that terminate before reaching the top of the rod (i.e., that the top of the rod is necessarily below the top of the undercut).¹⁰ Critically, even accepting the

¹⁰ The Court accepts K2M's expert's testimony that the set screw depicted in Landry Figure 1 is recessed because it must construe the evidence in the light most favorable to K2M. However, his subsequent testimony on this issue again appears to conflate the internal thread of the receiver with the external thread of the set screw. Notably, K2M's expert testified that because a set screw is designed to be either flush or countersunk once installed, and because "the external thread length is equal to or less than the distance between the top of the receiver and the top of the rod, one would assume" that, as the set screw becomes countersunk, it "indeed would be advanced into the undercut." Trial Tr. 1697 (emphasis added). If such statement was intended to reference the cited "external thread" it presents a perplexing assertion as all set screws with an external thread length that is "less than" distance [A] will necessarily be countersunk regardless of whether they enter into the undercut. Assuming in K2M's favor that its

questionable conclusion that the top of the rod and bottom of the set screw illustrated in Landry Figure 1 necessarily meet within the purported but not clearly pictured "undercut," no illustration or text identified by K2M (at trial or in post-trial briefing) suggests that the bottom-most thread of the set screw – as contrasted with the bottom/base of the set screw that interacts with and secures the rod – necessarily enters into the undercut.

As to this final point, the '784 patent expressly requires that "the first external thread of the securing element is moveable into the undercut." PX-2, Claim 1 (emphasis added). None of the Landry diagrams visually depict this characteristic, nor do the diagrams offer any clear basis to assume the presence of this necessary feature.¹¹ What Landry does provide in another relevant figure, which of course also "may not be to scale," is a side view

expert's reference to the external thread was accidental and he intended to reference the internal thread, the jury was still left with the misstatement, thus undermining K2M's purported "clear and convincing" showing as to element [g]. Alternatively, even if the jury successfully unscrambled the mistaken reference and interpreted K2M's expert as offering an opinion in reliance on the length of the internal thread, such "corrected" statement still relies on: (1) element [e] being proven by clear and convincing evidence, and as indicated above, it was not; and (2) the additional assumptions discussed immediately above.

¹¹ Though K2M argues in its briefs that it is appropriate to rely on unscaled diagrams for relative locations as long as precise measurements are not taken, the Landry figures plainly lack the degree of clarity needed to demonstrate, without resorting to precise hair-splitting measurements, that the rod is in a position where the external thread of the set screw must enter the undercut in order for the bottom/base of the set screw to secure the rod. Therefore, contrary to K2M's contention, K2M improperly seeks to rely on precise measurements and locations on unscaled figures, as contrasted with clearly depicted "relative" locations or "qualitative features."

of an embodiment of a set screw with a bottom thread that, at least as pictured, is above, and therefore not flush with the bottom/base of the set screw. DTX-270, at Fig. 15. Furthermore, the portion of Landry's specification discussing Figure 15 describes set screw embodiments that may have a "point" and "rim" on the bottom, raising further questions regarding the relative location of the threads of the set screw vis-à-vis the base of set screw. DTX-270, at 16:18-50.¹² The relative location of the thread in the only figure providing a side-view of an exemplar Landry set screw, coupled with the discussion in the specification, further reveals that K2M's expert offered a speculative conclusion that the thread of the set screw in Landry necessarily extends into the undercut purportedly pictured in an angled diagram¹³ – a diagram that may not be to scale and is included in Landry to display something other than the relative location of a purported, but not clearly depicted, undercut.

¹² Biedermann cites neither Figure 15 nor the related discussion in the specification, but the entire Landry patent was before the jury such that these portions of the patent are facts in evidence. The Court highlights these facts as an additional basis to demonstrate that K2M's expert offered speculative testimony, and the Court's resolution of Biedermann's motion is not dependent on this supplemental observation.

¹³ The fact that Figure 1 of Landry is orientated at an angle that makes it difficult to determine the relative location of the bottom/base of the set screw, let alone the location of the bottom thread of the set screw, further undercuts K2M's position. The Court, however, has interpreted such drawing in the light most favorable to K2M, and it does not accept Biedermann's expert's outright rejection of the figure solely due to its less-than-ideal orientation.

The Court does not take lightly the decision to grant a motion upsetting the jury's verdict. But in this instance, in the context of a patent infringement action involving difficult factual and legal concepts foreign to many lay jurors, it is apparent to the Court that no reasonable jury presented with expert testimony reasonably predicated on the language and figures of the patents at issue could conclude that "clear and convincing evidence" supports a finding of anticipation based on Landry. See Price, 93 F.3d at 1250 ("While we are compelled to accord the utmost respect to jury verdicts and tread gingerly in reviewing them, we are not a rubber stamp convened merely to endorse the conclusions of the jury, but rather have a duty to reverse the jury verdicts if the evidence cannot support it." (citations omitted)). To the contrary, K2M has offered nothing beyond its expert's speculation regarding ambiguous figures, which "may not be to scale," to demonstrate that elements [e] and [g] are necessarily present in Landry. The Court accepts K2M's legal contention that controlling law does not categorically preclude the reliance on patent figures to draw certain "relative" or "qualitative" comparisons even when the figures may not be to scale. Nonetheless, for all the reasons discussed above that analyze the case-specific record, Biedermann's well-founded JMOL motion is granted with respect to the jury's finding of invalidity as to the '784 patent.

E. New Trial on Invalidity

In light of the above findings in favor of Biedermann, the Court does not take up Biedermann's alternative request for a new trial on invalidity as to the '121 and '784 patents. See ECF No. 993, at 18 (indicating that "if the Court does not grant Biedermann's request for JMOL, Biedermann is entitled to a new trial" based on the jury's verdict being against the weight of the evidence). As to Biedermann's request for a new trial on the '399 patent, such request is denied because, for the same reasons previously discussed, Biedermann fails to demonstrate that the jury's finding of anticipation as to Kim is not supported by "substantial evidence" when the trial record is viewed in the light most favorable to K2M.

F. JMOL or New Trial on '121 Infringement

Biedermann's final contention is that it is entitled to JMOL, or alternatively a new trial, as to infringement of the '121 patent.¹⁴ Although the jury concluded that K2M's Yukon device does not infringe on Biedermann's '121 patent, Biedermann argues that unrefuted evidence establishes that Yukon, at least some of the

¹⁴ To provide a brief technical reorientation to the '121 patent, this patent involves a pressure member exerting a sufficient temporary holding force on the head of the screw to create a posable screw shank, and the manner in which this hold is achieved requires that the pressure member frictionally engage the inner wall of the receiver. At trial, Biedermann asserted that K2M's Yukon device has a pressure member that frictionally engages the receiver wall, whereas K2M asserted that its pressure member is threaded into the receiver and that a spring member on one side of the receiver creates the frictional engagement necessary to pose the screw shank.

time, meets the disputed "element [e]" of the '121 patent and likewise meets "element [f]." Biedermann relies on its expert's trial testimony, the testimony of Lutz Biedermann, and an image of a cross-section of a sample Yukon screw displaying the pressure member in contact with the inner wall of the receiver. Biedermann separately argues that post-trial relief is appropriate because K2M's counsel engaged in misconduct both by inviting the jury to improperly conduct a Markman analysis regarding the '121 patent's purported disclaimer of using a spring element to create a friction fit and by contending that upward movement of the pressure member must be a movement out of friction fit.

1.

The Court easily resolves Biedermann's first argument in K2M's favor. First, there was a genuine factual dispute at trial regarding the degree to which the cross-section of the Yukon screw on which Biedermann relies accurately reflects an operational Yukon screw that had not been encased in epoxy and cut in half to create a viewable cross-section. Second, and more importantly, there were genuine factual disputes to be resolved by the jury as to: (1) whether the Yukon bone screw assembly achieves a posable screw shank in the manner portrayed by K2M's expert or in the contrary manner portrayed by Biedermann's expert; (2) even assuming that the cross-sectioned Yukon screw cited by Biedermann accurately reflects the operation of an intact Yukon screw, whether

the pressure member's contact with the left inner wall of the Yukon receiver is merely incidental or whether it is significant enough to create the required holding force¹⁵; and (3) further assuming that a holding force is created by the wall of the receiver such that element [e] is satisfied, whether element [f] is also met by Yukon. Element [f] requires that the pressure member can be moved upward by a sufficient "axial force" (i.e., a force pressing upward), but K2M's engineers testified that Yukon's pressure member is threaded into the receiver (like a screw) not inserted straight in (like a nail), creating a factual dispute regarding whether Yukon's pressure member can only be moved upward by unthreading.

Although Biedermann now asserts that the only conclusion supported by the evidence is that Yukon infringes on the '121 patent – an issue on which Biedermann bore the burden at trial – Biedermann's own expert testified that he did not perform "any

¹⁵ At trial, the jury was presented with images of cross-sections of multiple Yukon screw samples, and only one of the images appeared to show contact between the pressure member and the receiver's inner wall. PX-337. In its post-trial briefing, Biedermann cites precedent establishing that "[i]t is well settled that an accused device that sometimes, but not always, embodies a claim nonetheless infringes." Broadcom Corp. v. Emulex Corp., 732 F.3d 1325, 1333 (Fed. Cir. 2013) (quotation marks omitted). Although the Court accepts that legal principle, the existence of contact in only one of the several Yukon samples can be interpreted in different ways, and the Court must review the evidence in the light most favorable to K2M. On this record, the jury could have reasonably interpreted the outlier sample not as proving "sometimes" infringement, but instead as supporting K2M's engineer's contention that any contact in the outlier sample was merely "incidental," with the requisite holding force across all samples coming from the friction the spring created between the pressure member and the screw head, not from any friction between the pressure member and the receiver wall.

testing at all" to determine whether element [f] was satisfied and that he did not "test" for the element [e] holding force either, relying instead on his review of "engineering drawings" and the epoxy cross-section "test reports." Trial Tr. 1082-84. Furthermore, the jury heard testimony from K2M's expert and Yukon's inventor indicating that Yukon's spring element pushes the pressure member against the head of the bone screw to create the frictional force necessary to hold the screw at a temporary angle (element [e] not satisfied) and that Yukon's pressure member could not be pushed upward by an axial force after it is screwed into place (element [f] not satisfied). Id. at 1381, 1390.

Biedermann's contrary evidence and contrary theory were sufficient to create a genuine factual dispute, but this dispute falls squarely within the province of the jury. Biedermann's post-trial briefs fail to demonstrate that the jury's verdict was against the greater weight of the evidence. To the contrary, the jury faithfully upheld its duty to assess conflicting testimony, make credibility determinations, and determine whether Biedermann carried its burden to prove infringement. Biedermann's first argument for JMOL or a new trial is therefore rejected.

2.

As to Biedermann's challenge to the propriety of K2M's counsel's statements and arguments at trial regarding the impact of Yukon's reliance on a spring element, and/or regarding whether

the Yukon pressure element must be moveable "out of friction fit," Biedermann fails to demonstrate either that the improprieties, if any, were sufficiently serious to affect Biedermann's substantial rights or that "justice" requires a new trial. See Fed. R. Civ. P. 61 ("Unless justice requires otherwise, no error in admitting or excluding evidence--or any other error by the court or a party--is ground for granting a new trial, for setting aside a verdict, or for vacating, modifying, or otherwise disturbing a judgment or order."). As effectively argued by K2M in response, ECF No. 989, at 26-29, Biedermann's trial objections as to both topics came after questions had already been answered by the relevant witness, see Trial Tr. 518-20; 1062-64; 1088-89, neither topic was necessary to K2M's non-infringement case, and the Court limited reliance on these arguments as appropriate. Even at this stage, it does not appear that K2M's counsel engaged in any "misconduct," nor does it appear that any of the claimed misconduct impacted Biedermann's substantial rights or that there is a reasonable probability that the verdict was improperly influenced by such conduct. Finally, as argued by K2M, the jury was properly instructed regarding the findings it needed to make regarding infringement, and the parties' closing arguments effectively directed the jury to the element-

by-element comparison of the requirements of Biedermann's patent claims to the features and the operation of K2M's products.¹⁶

For these reasons, Biedermann's motion seeking either a JMOL regarding infringement or a new trial on infringement is denied. The record fully supports the reasonableness of the jury's verdict as to the '121 patent based on properly admitted evidence, and frankly, the Court likely would have returned the same verdict given Biedermann's burden and its expert's failure to perform any testing or to otherwise demonstrate by a preponderance that the inner wall of Yukon's receiver creates a frictional holding force.

IV. DISCUSSION - K2M'S MOTION

K2M's motion seeks JMOL, or alternatively a new trial, based on the jury's finding of infringement of the '600 patent. K2M separately argues that the jury's damages award on the '600 patent was not supported by sufficient evidence and, thus, alternatively seeks a new trial on damages or a "remittitur" reducing the jury's damages award. For the reasons explained below, all of K2M's claims for relief are denied.

A. Infringement - '600 Patent

K2M contends that the Court should enter JMOL or order a new trial on infringement of the '600 patent because the Court did not instruct the jury about a disclaimer it found during Markman claim

¹⁶ References to the spring element were not repeated during closing arguments; rather, the jury was properly tasked with performing an element-by-element comparison unrelated to these brief comments during trial.

construction associated with the requirement that the pressure member is capable of moving upward within the receiver when the pressure member's spring element is engaged with the receiver's wall. Various species of this same argument have been raised and re-raised by K2M throughout this litigation, and the Court again finds that the Markman construction provided by the Court in ECF No. 265, at 47-52, when read in light of the relevant claim language, effectively informed the jury of the proper way to interpret the patent claim language at issue, leaving a hotly contested factual dispute (not a Markman issue) to be resolved by the jury. The jury's finding of infringement as to the '600 patent was therefore properly predicated on the resolution of a genuine factual dispute regarding the "diving board" feature of K2M's Everest product.

The jury properly considered (and rejected) K2M's effort to demonstrate that the required "upward movement" of the pressure member from first position to second position is so minimal in Everest that it should be interpreted as no movement at all. Notably, the evidence supported a finding that K2M's Everest product not only permitted but relied on upward movement, as underscored by the fact that K2M's engineer: (1) proposed a non-infringing alternative relying on two "coil springs" to replace the current Everest design; (2) referred to the current Everest design as having "flexible tabs"; and (3) acknowledged on cross-

examination that Everest's tabs are "designed to have some flexibility." Trial Tr. 1324, 1348 (emphasis added); see DTX-285, at XP-3509. K2M's own expert similarly acknowledged that the Everest pressure member has "spring tabs" with the ability to "flex up and down" and that they are a "little bit floppy" and can "bend like a diving board." Trial Tr. 1714, 1732. Biedermann's expert also provided testimony that the jury was entitled to adopt, indicating that "after assembly the spring tabs allow the pressure element to move up, deflecting or flexing the spring tabs and allowing the pressure element to take on different positions up and down in the receiver." Trial Tr. 946 (emphasis added). K2M's motion is therefore denied as to its requests for JMOL or for a new trial.¹⁷

B. Damages - '600 patent

K2M next contends that the Court should enter JMOL or grant a new trial on the issue of damages as to K2M's Everest product. Alternatively, K2M seeks a remittitur reducing the royalty on Everest from 4% to 0.18% (before adjustments). In essence, K2M

¹⁷ K2M's related effort to demonstrate that the Court erred by limiting certain testimony regarding the '600 patent's prosecution history fares no better, with K2M failing to demonstrate that any purported error impacted its substantial rights. To the contrary, immediately before the Court's ruling, the Court articulated to counsel and the jury that the key issue was a factual matter for the jury as the jury must consider the testimony of "each of the expert witnesses as well as the other facts" and make the determination "whether they believe that what they have been shown about how much the pressure element is moving is enough to go from position one to position two." Trial Tr. 1128.

asserts both that Biedermann presented a damages case that left the jury to speculate on the "apportioned" value of the infringing friction-fit/temporary hold feature of Everest and that the royalty returned by the jury was excessive and unsupported by the evidence. For the reasons argued in greater detail by Biedermann in its opposition brief, ECF No. 990, at 16-29, the Court finds that K2M fails to carry its burden as to JMOL, a new trial, or a remittitur.

At trial, the jury heard ample evidence that Everest's temporary hold feature is important to surgeons and was advertised by K2M as one of Everest's many beneficial features. Additionally, though the jury was presented with significant technical testimony and testimony from experts about the benefits of a frictional hold, jurors could also rely on their common sense to conclude that a "floppy" spinal fixation assembly without the temporary hold feature would make surgery more difficult. Trial evidence further demonstrated that a spinal fixation product without such beneficial feature would struggle against competitor products that do have such feature.

Based on the evidence presented at trial, it would be reasonable to conclude that Biedermann's patented temporary hold feature was critical to the success of the Everest spinal fixation assembly, and K2M fails to demonstrate that the jury's awarded royalty, which was 50% less than the royalty sought by Biedermann,

was outside the range of reasonableness supported by the evidence.

See, e.g., 349-51, 427-431. The fact that the jury awarded different royalties for K2M's Yukon and Everest products, each of which was found to practice different Biedermann patents, further underscores the jury's careful determination of a royalty linked to the perceived apportioned value of the valid patented feature to the overall product at issue.

The jury heard testimony from witnesses supporting Biedermann's theory that every patent in the bone screw assembly field should be valued at a royalty of 8%, but nevertheless followed the Court's express instruction to calculate a specific apportioned value for the infringement proven with respect to each of K2M's two infringing products. Though the jury heard multiple trial witnesses testify that all of the patents at issue had a roughly equal value,¹⁸ the jury also heard evidence that the value of the favored-angle feature versus the friction fit feature was not the same across different products. For example, admitted evidence demonstrated that products designed for the cervical

¹⁸ The fact that it is difficult to "rank" the value of the various patented bone screw advancements that were addressed at trial was supported by the factual record, with multiple witnesses testifying that different product features are more or less valuable depending on the preferences of the individual surgeon and the type of surgery being performed, with the ultimate goals of all of the technological advancements being multi-faceted (i.e., creating a bone screw assembly that is safer, easier to use, performs consistently, results in better surgical outcomes, permits cost-effective precision mass manufacturing, and that increases a surgeon's efficiency thereby reducing the length of surgery). See, e.g., Trial Tr. 304-05, 380-81, 1245-46, 1481-84, 1518-19.

spine (Yukon) depended on the favored-angle feature, whereas the design team for the Everest degenerative bone screw assembly noted that there was "no need for biased/favorite angle screw in degen cases," but that a "[f]riction head is a must." PX-228 (emphasis added); see Trial Tr. 1241-43 (labeling the temporary hold feature as offering "great value to a surgeon" and explaining why this feature is important for meeting the goal of "efficiency and effectiveness, as well as safety and consistency" and that surgery is "much harder, more difficult" if the temporary hold is lost); id. at 1243-44 (discussing the apparent importance of a friction head to the Everest design team, and the fact that K2M advertised this as a feature of Everest in the surgical technical guide).¹⁹ In fact, the same Everest "Product Design and Development Meeting Minutes" document noted that one of K2M's other products was viewed as problematic due to the "lack of drag in screw head" because it made it "difficult to place rods." PX-228. The meeting minutes also referenced competitor products currently on the market, including one that was preferred in part because the "drag in screw head allows easy placement of rod." Id. This contemporaneous evidence from K2M's own Everest product design and development

¹⁹ Though the Yukon screw was not accused of using the patented friction-fit design, it too has a posable screw shank. PX-568. In considering the overall value of the Everest friction-fit feature, the jury reasonably could have relied on the fact that the Yukon surgical technical guide prominently listed Yukon's "Friction Head to Improve Rod Placement" in the "Features and Benefits" list located on the very first page after the table of contents. Id.

team could have reasonably been afforded great weight by the jury when determining the appropriate royalty.

As in many other complex patent cases, the jury in this case was called on to make difficult determinations based on conflicting evidence in order to calculate the incremental value of the patented feature at issue. The jury was presented with multiple exemplar license agreements and was able to consider the testimony from K2M's engineers explaining how inexpensively and easily K2M could purportedly design around the infringing friction-fit feature juxtaposed with the fact that K2M had elected not to commercialize a purportedly simple and inexpensive design-around in the years between the filing of the lawsuit and trial. Viewed in the light most favorable to Biedermann, the fact that K2M elected neither to eliminate the friction-fit feature from Everest nor to implement a purportedly simple and inexpensive design-around offers circumstantial support for the critical importance of this feature to Everest's commercial success. The fact that the jury determined significantly different royalties for Yukon's infringement than for Everest's infringement underscores the fact that the jury followed the Court's instructions to award a royalty linked to the incremental value of the patented feature.²⁰

²⁰ Jury Instruction 41 informed the jury as follows: "A royalty compensating the patent holder for damages must reflect the value attributable to the infringing features of the product and no more. . . . When the accused infringing products have both patented and unpatented features, your award must be apportioned so that it is based only on the value of the patented

Beyond failing to prove that the jury's damages calculation was excessive or unsupported by the weight of the evidence, K2M also fails to carry its burden to demonstrate that the jury relied "only on speculation and guesswork" to determine the appropriate royalty award. Pavo Sols. LLC v. Kingston Tech. Co., Inc., 35 F.4th 1367, 1378-79 (Fed. Cir. 2022) ("A jury's damages award must be upheld unless the amount is grossly excessive or monstrous, clearly not supported by the evidence, or based only on speculation or guesswork." (quotation marks omitted)). Rather, the jury was properly instructed on apportionment and was provided with multiple similar licenses within the field, as well as differing approaches to licensing within the relevant field (i.e., licensing an entire patent portfolio²¹ or the universe of technological advances arising out of the design of a still unproven new product, versus licensing an individual bone-screw advancement as captured by a single patent/patent family).

features and no more." Additionally, during closing arguments, Biedermann's counsel reminded the jury that it "is absolutely critical, as His Honor instructed you, that when you award damages in this case, you only award damages for the value of the patented feature" and not for the "other technology" in the product that "isn't Mr. Biedermann's." Trial Tr. 2009.

²¹ Biedermann presented testimony that one broad license applied a low royalty rate (1.87%) for the right to practice Biedermann's entire patent portfolio, but such rate applied to sales of multiple products sold worldwide regardless of whether the product practiced one of Biedermann's patents. Trial Tr. 438-41. Therefore, while the royalty rate was low, the royalty base was very large, and the jury could have concluded that rate undervalued the licensed technology since payments were required on a large number of product sales that did not practice any Biedermann patent (the agreement also included a very substantial minimum annual payment for ten years).

For example, the jury heard evidence regarding a 3.5% royalty agreement reached between K2M and Dr. Carbone for any intellectual property he helped develop associated with his assistance designing Everest, Trial Tr. 1453-54, and Dr. Carbone separately testified that he was previously paid a 5% royalty by another spine company (Stryker) for his involvement developing the "Oasys" product line, which included the "favored-angle" feature discussed at length at trial as well as other design advancements. Id. at 1454-55. The jury separately heard testimony that "Alpha" company entered into a license agreement with Biedermann for the favored-angle feature, along with additional patents in the same favored-angle family, valued at 8%.²² The fact that the jury ultimately valued Everest's friction-fit feature at 4% is far from a "grossly excessive" award.

K2M fails to demonstrate that the jury guessed in ascribing this value within the context of the case-specific hypothetical negotiation, where one assumes that the patents are both valid and infringed and has the benefit of the "Book of Wisdom" regarding post-negotiation developments. Here, the jury was presented with the so-called "Georgia-Pacific factors" during trial. Jury Instruction 42 listed all of these factors and indicated that they may be considered in determining the reasonable royalty, and the

²² The parties characterized the value of this license in different ways, but viewed in the light most favorable to Biedermann, this license involved an 8% royalty for the favored-angle family of patents.

jury further heard testimony from Biedermann's damages expert as to several of these factors. PDX-4.005; Trial Tr. 673-95, 1950-53; see Exmark Mfg. Co. Inc. v. Briggs & Stratton Power Prod. Grp., LLC, 879 F.3d 1332, 1348-49 (Fed. Cir. 2018) (explaining that "one possible way" to apportion the "relative value of the patentee's invention in comparison to the value of the conventional elements recited in the claim" is "through a proper analysis of the Georgia-Pacific factors").

The 4% royalty, while higher than some of the exemplar bone screw licenses, must be considered in the context of the hypothetical negotiation in this case. Here, Biedermann introduced evidence demonstrating that Everest's own design team's documents identified the friction-fit feature as a "must" in order to compete with existing products that were enjoying positive feedback from surgeons because of the level of "drag" those products exhibited. Critically, the Federal Circuit has "never required absolute precision in [applying the principles of apportionment]; on the contrary, it is well-understood that this process may involve some degree of approximation and uncertainty." Bio-Rad Labs., Inc. v. 10X Genomics Inc., 967 F.3d 1353, 1377 (Fed. Cir. 2020) (alteration in original) (quoting VirnetX, Inc. v. Cisco Sys., Inc., 767 F.3d 1308, 1328 (Fed. Cir. 2014))). K2M's post-trial attack on the jury's damages award is therefore denied.

V. CONCLUSION

For the reasons explained above, Biedermann's post-trial motion is **GRANTED** in part with respect to Biedermann's request for JMOL regarding the jury's invalidity findings as to the '121 and '784 patents, and is **DENIED** in all other respects. ECF No. 987. K2M's post-trial motion is **DENIED** in its entirety. ECF No. 985.

The Clerk is **DIRECTED** to send a copy of this Opinion and Order to all counsel of record.

IT IS SO ORDERED.

/s/ 

Mark S. Davis

CHIEF UNITED STATES DISTRICT JUDGE

Norfolk, Virginia
June 21, 2023